No. 798,289. PATENTED AUG. 29, 1905.

G. P. MILLER.

YARN TRAVERSE REGULATING DEVICE FOR SPINNING MACHINES.

APPLICATION FILED NOV. 25 1904.

2 SHEETS—SHEET 1.

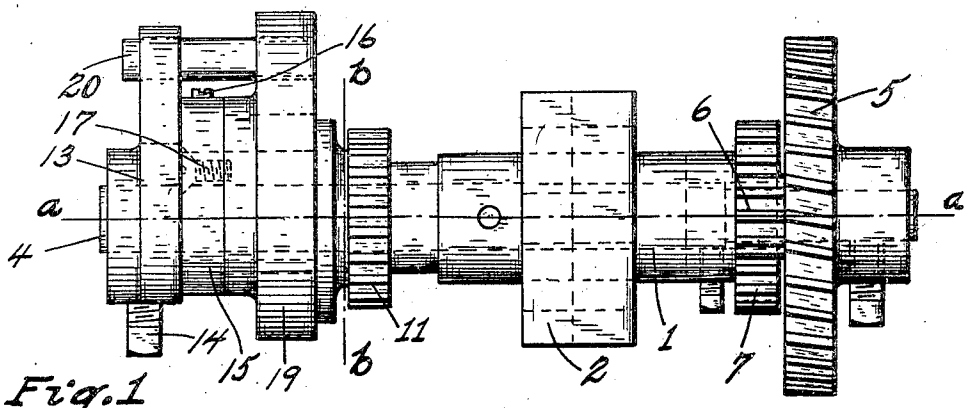


Fig. 1

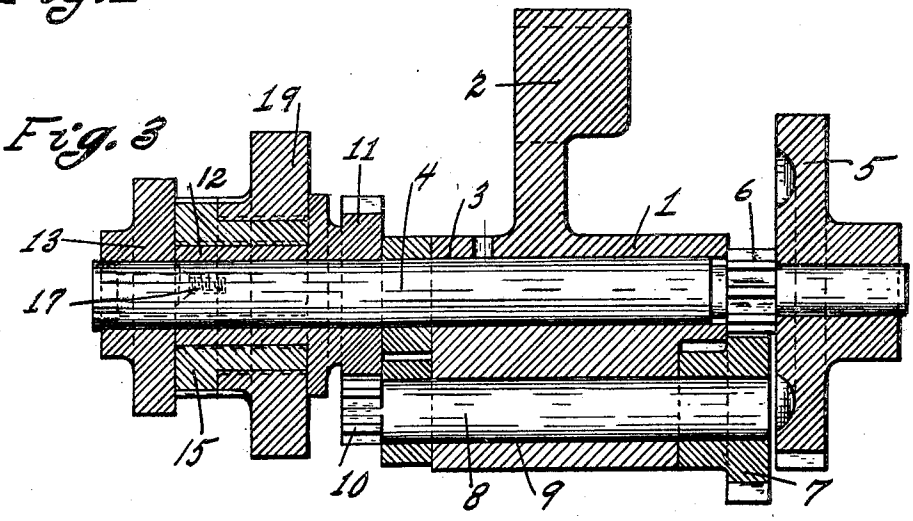


Fig. 3

Fig. 2

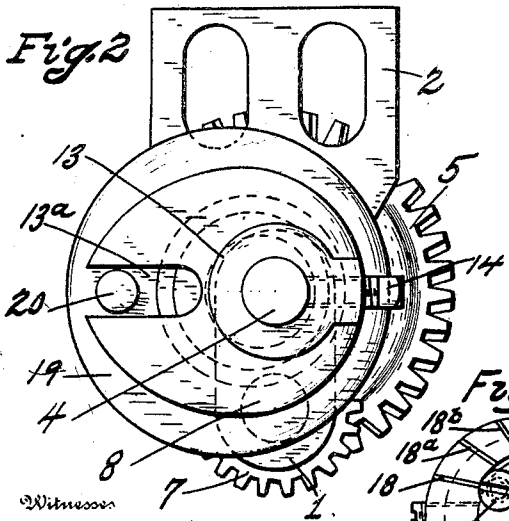


Fig. 4

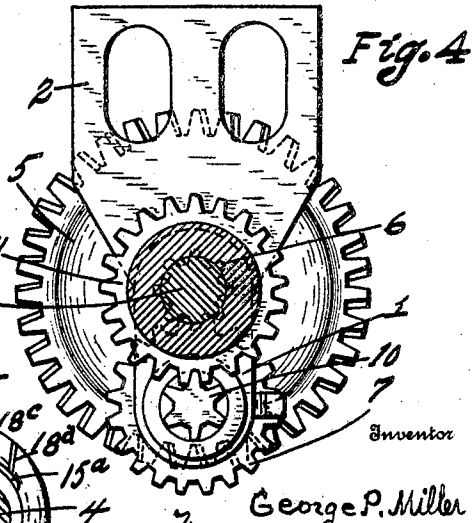
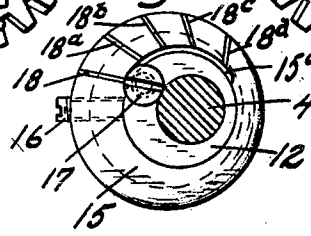


Fig. 5



Witnesses:

Robert K. Perkins

Louis von Graeve

Inventor

George P. Miller

by Warren E. Willis

Attorney

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

No. 798,289. PATENTED AUG. 29, 1905.

G. P. MILLER.

YARN TRAVERSE REGULATING DEVICE FOR SPINNING MACHINES.

APPLICATION FILED NOV. 25, 1904.

2 SHEETS—SHEET 2.

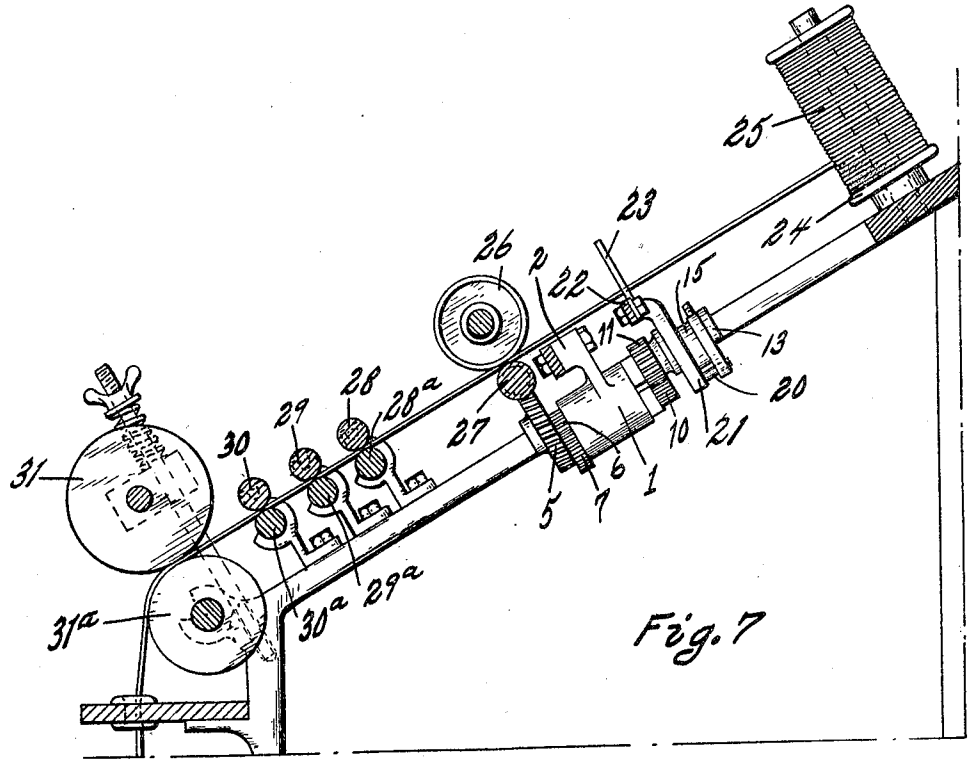


Fig. 7

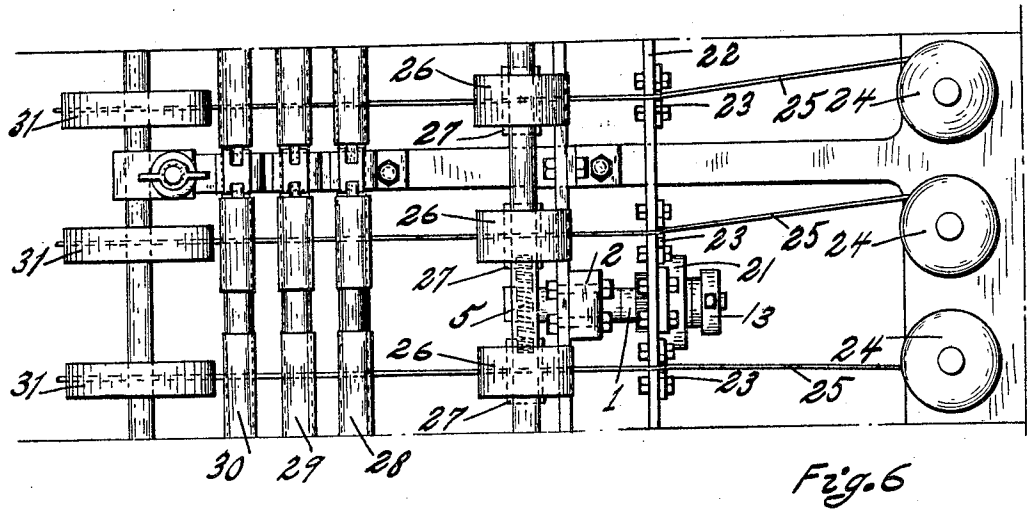


Fig. 6

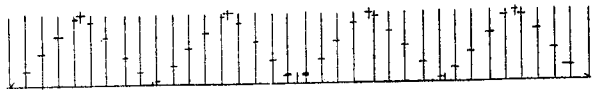


Fig. 8

Witnesses

Robert F. Perkins

Louis von Graeve

Inventor

George P. Miller

by Warren E. Willis

Attorney

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE P. MILLER, OF PHILADELPHIA, PENNSYLVANIA.

YARN-TRAVERSE-REGULATING DEVICE FOR SPINNING-MACHINES.

No. 798,289. Specification of Letters Patent. Patented Aug. 29, 1905.

Application filed November 25, 1904. Serial No. 234,318.

To all whom it may concern:

Be it known that I, GEORGE P. MILLER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Cotton and Worsted Spinning-Machine, of which the following is a specification.

This invention relates to that class of devices applied to spinning-machines in which an eccentric is used to operate the thread-carrying bar and in which the said eccentric has a variable adjustment as to the amount of its throw. Its objects are, primarily, the production of means whereby a thread is so guided in its passage over its supporting-roller that the wear on the said roller is equalized over its entire surface; second, to provide a device that is capable of being attached to textile spinning and drawing machines used for the manufacture of silk or worsted yarns; third, to provide means in such a device whereby the thread may be adjusted to definite amounts of travel between the surfaces of the rollers and constantly changing the limit of travel so that a reverse action does not take place consecutively at the same point; fourth, to provide a device that is at all times readily adjustable within the desired limits; fifth, to provide a mechanism for these purposes that can be applied to existing conditions without change therein, which occupies but little space, which is of simple and comparatively inexpensive construction. Its objects are attained by the mechanism hereinafter fully described, and shown in the accompanying drawings, in which—

Figure 1 is a plan-view of the entire invention. Fig. 2 is an end view of the same. Fig. 3 is a longitudinal section taken on line *a a* of Fig. 1. Fig. 4 is a transverse section on line *b b* of Fig. 1, showing arrangements of gearing. Fig. 5 is a detail of the eccentric-changing device. Fig. 6 is a plan view of a portion of a spinning-machine projected on a horizontal plane having my device attached thereto. Fig. 7 is an end view of the same. Fig. 8 is a diagram, showing the limits of travel of the eccentric from one point to the next point of coincidence.

Similar characters refer to similar parts throughout the several views.

The main frame 1 of the device has at its upper side the flange projection 2, adapted to be bolted or otherwise secured to suitable support, as part of the frame of the mechanism to which it may be attached.

In the frame 1 is the bearing 3, carrying the shaft 4, which has centered on it at one end the worm-wheel 5 or other suitable means for conveying rotary motion to the said shaft 4. Between the worm-wheel and the end of the bearing on the shaft 4 is likewise centered the spur-pinion 6, meshing with the spur-gear 7, centered on the shaft 8, running in the bearing 9, formed in the frame 1 immediately below the bearing 3. Upon the shaft 8, at its other end, is the spur-pinion 10, meshing in turn with the spur-gear 11, which revolves freely on shaft 4, and has connected at its outer end the sleeve 12. Beyond the extending hub 12 is the driver 13, secured to the shaft 4 by means of the set-screw 14.

From the foregoing it will be evident that when power is transmitted to the worm-wheel 5 the spur-gear 11, together with its extension 12, will be caused to revolve at a very much slower rate of speed than will the shaft 4 or the driver 13, which is fast upon it, and the relative rate of rotation will be dependent entirely upon the number of teeth in the spur-gears 6, 7, 10, and 11. In the case shown the proportion is as four is to thirty-five. The sleeve 12 is not concentric, but is formed eccentrically with a throw of about one-half of the entire amount desired.

Upon the eccentric-sleeve 12 is loosely centered the eccentric 15, having the set-screw 16 and a clamp or binding screw 17. It is also provided with marks 18 18^a 18^b 18^c 18^d to aid in proper locating of its throw in relation to the throw of the eccentric-sleeve 12. The clamp-screw 17 is provided with a conical head fitting in the corresponding-shaped recess in the end of the eccentric-sleeve 12; but a portion of the head is adapted to impinge upon the beveled semi-annular recess 15^a, formed in the side of the eccentric 15.

From an inspection it will be evident that the eccentric 15 may be so located with reference to the eccentric-bushing 12 that when rotary motion is transmitted through the shaft 4 a resultant action of the eccentric 15 may be increased or decreased accordingly as the marks 18 18^a 18^b 18^c 18^d are placed in coincidence with the mark or slot in the head of the screw 17.

Mounted on the eccentric 15 is the eccentrically-bored disk 19, having the pin 20, adapted to enter into an appropriate slotted opening 13^a in the driver 13 and so connected

therewith that when rotary motion is transmitted through the shaft 4 the disk 19 is caused to revolve at the same rate of speed.

The exterior disk 19 is turned to a true circle and adapted to operate in a yoke 21, attached to the bar 22, carrying the thread-guides 23, all of which are alike. If the said disk 19 be caused to revolve, it will in turn cause the thread-guide bar 22 to travel in a rectilineal motion in amount equal to the throw of the eccentrics therein, and this motion gives a regular amount of travel to the said thread-guide bar; but by reason of the train of gearing herein described the eccentricity of the motion is constantly changing, not in amount, as that will remain the same at all times after once being determined upon and the eccentrics clamped by the screw 17, but the relative position of the eccentrics is caused to constantly change, thereby affecting the resultant action of the thread-guide bar.

In Figs. 6 and 7 there is shown sufficient of the mechanism of a spinning-machine to illustrate the purpose of this device. Referring thereto, the spools 24, containing the thread or yarn 25, are located above and beyond the mechanism of this invention, the yarn passing through the guides 23 between the compression-roller 26 and the drawing-roller 27, thence between the guide-rollers 28 28^a, 29 29^a, 30 and 30^a to and between the tension-rollers 31 31^a, the purpose being to equalize and stretch the yarn in its passage. As commonly made the latter set of rollers are covered with leather, and the constant friction of the yarn passing between while under tension rapidly wears their surface uneven, forming grooves therein.

The use of an eccentric to move the yarn in its passage, thus distributing the wear, is not new; but an ordinary eccentric has only a definite amount of travel, causing the yarn to move in the same path, which soon forms a "dwell" at the limit of its travel. This invention overcomes the wear by reason of a constantly-changing point of reversal of travel of the yarn between the faces of the rolls.

Fig. 8 shows the end or limit of yarn travel over the face of a roller developed. From it may be seen that the same point is reached only after a large number of revolutions, depending upon the proportion of the gears used in the train.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a device of the class described, the combination with a fixed frame, a driven shaft journaled therein, and an eccentric-bushing revoluble thereon, of means for causing the said eccentric-bushing to revolve at a different rate of speed from that of the said shaft, of a secondary eccentric so combined with the said eccentric-bushing as to be adjustable thereon, and of a third eccentric revoluble on the periphery of the secondary eccentric and adapted to be connected to and driven by the said shaft, all substantially as shown and described.

2. In a device of the class described, the combination of a frame, a shaft journaled therein, means for transmitting rotary motion thereto and a train of speed-reducing gears operatively connected to the said shaft and capable of being driven thereby, of an eccentric-sleeve revoluble on the said shaft and so combined with the said speed-reducing train as to be rotatable thereby, an eccentric-bushing semirotatably mounted on the said eccentric-sleeve, means for securing the said eccentric-sleeve to the said eccentric-bushing at various points of adjustment, an outer eccentric revoluble on the said eccentric-bushing, a driver centered on and secured to the said shaft and a suitable member operatively connecting the said driver with the said outer eccentric, all substantially as shown and described.

In testimony whereof I affix my signature, in the presence of two witnesses, this 2d day of November, A. D. 1904.

GEORGE P. MILLER. [L. S.]

Witnesses:
JACOB MOEHLIG, Jr.,
WM. H. COURTENAY.